

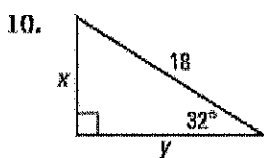
USING SINE AND COSINE RATIOS Use a sine or cosine ratio to find the value of each variable. Round decimals to the nearest tenth.

$$\sin 32 = \frac{x}{18}$$

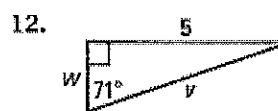
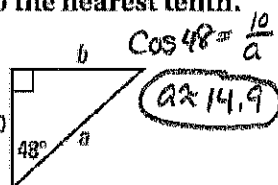
$$x \approx 9.5$$

$$\cos 32 = \frac{y}{18}$$

$$y \approx 15.3$$



11. $\sin 48 = \frac{b}{14.9}$
 $b \approx 11.1$

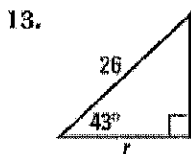


$$\sin 71 = \frac{v}{5}$$

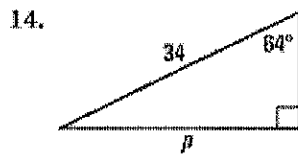
$$v \approx 5.3$$

$$\cos 71 = \frac{w}{5.3}$$

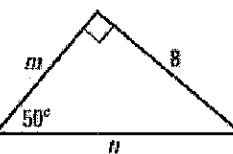
$$w \approx 1.7$$



$\sin 43 = \frac{s}{26}$
 $s \approx 17.7$



15. $\cos 64 = \frac{q}{34}$
 $q \approx 14.9$



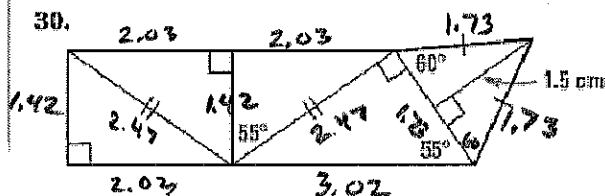
$$\sin 50 = \frac{8}{n}$$

$$n \approx 10.4$$

$$\cos 50 = \frac{m}{10.4}$$

$$m \approx 6.7$$

PERIMETER Find the approximate perimeter of the figure.



① $\sin 60 = \frac{1.5}{x}$
 $x \approx 1.73$

② $\cos 55 = \frac{1.73}{y}$
 $y \approx 3.02$

④ $\sin 55 = \frac{a}{2.47}$
 $a \approx 2.03$

③ $\sin 55 = \frac{z}{3.02}$
 $z \approx 2.47$

⑤ $\tan 55 = \frac{2.03}{b}$
 $b \approx 1.42$

Depends on where you round

⑦

$$P \approx 2(1.73) + 3(2.03) + 1.42 + 3.02$$

$$⑥ 2.47^2 - (1.42)^2$$

$$\sqrt{4.09}$$

$$2.02$$

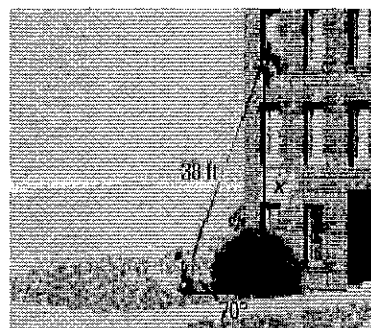
$$P \approx 13.99$$

36. MULTI-STEP PROBLEM You want to hang a banner that is 29 feet tall from the third floor of your school. You need to know how tall the wall is, but there is a large bush in your way.

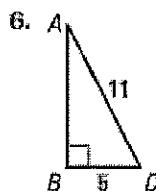
- a. You throw a 38 foot rope out of the window to your friend. She extends it to the end and measures the angle of elevation to be 70° . How high is the window?

$$\sin 70 = \frac{x}{38}$$

$$x \approx 35.7 \text{ ft}$$

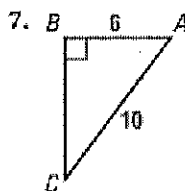


USING INVERSE SINES AND COSINES Use a calculator to approximate the measure of $\angle A$ to the nearest tenth of a degree.



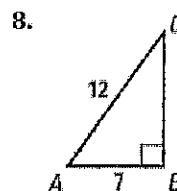
$$\sin A = \frac{5}{11}$$

$$A \approx 27.0^\circ$$



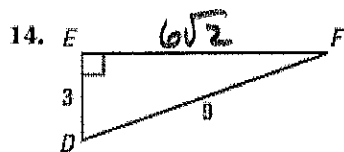
$$\cos A = \frac{6}{10}$$

$$A \approx 53.1^\circ$$



$$\cos A = \frac{7}{12}$$

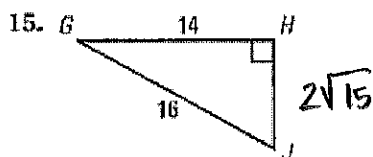
$$A \approx 54.3^\circ$$



$$EF^2 + 3^2 = 9^2$$

$$\cos D = \frac{3}{9}$$

$$\begin{aligned} m\angle D &\approx 70.5^\circ \\ m\angle F &\approx 19.5^\circ \\ EF &= 6\sqrt{2} \end{aligned}$$



$$16^2 = 14^2 + HJ^2$$

$$60 = HJ^2$$

$$\cos G = \frac{14}{16}$$

$$\begin{aligned} m\angle G &\approx 29.0^\circ \\ m\angle J &\approx 61.0^\circ \\ HJ &= 2\sqrt{15} \end{aligned}$$